

WHAT IS CLAIMED IS:

1. The process of forming a solderable top surface for a semiconductor die having a metallic top electrode structure; said process comprising the deposition of a mask layer over the surface of a wafer containing a plurality of identical die having said metallic top electrode structure; photolithographically
5 opening at least first and second openings in said mask layer over each of said plurality of die; depositing a first metal layer which adheres to metallic electrode over said mask layer and onto the metallic electrode surface exposed by said at least first and second openings; depositing a second metal layer which is solderable over said first metal layer; removing said mask layer and the first and second metal layers
10 overlying said mask layer and leaving in place the metals formed in said at least first and second openings, forming a passivation insulation layer over the silicon surface exposed by the removal of said mask layer with said metals remaining in said at least first and second openings and protruding beyond the surface of said passivation insulation layer and terminating in a common plane above said passivation layer; and
15 thereafter singulating said die from said wafer.

2. The process of claim 1, wherein said wafer has a common solderable electrode formed over its full bottom surface.

3. The process of claim 1, wherein said aluminum top electrode for each die is segregated into first and second insulated segments; said at least first and second openings formed over said first and second segments respectively.

4. The process of claim 3, wherein said at least first and second openings include a plurality of openings atop said first segment to define a plurality of conductive posts connected to said first segment.

5. The process of claim 3, wherein said first and second segments are source and gate electrodes respectively of a power MOSFET.

6. The process of claim 1, wherein said mask layer is a photosensitive polyimide.

7. The process of claim 2, wherein said mask layer is a photosensitive polyimide.

8. The process of claim 3, wherein said mask layer is a photosensitive polyimide.

9. The process of claim 4 wherein said mask layer is a photosensitive polyimide.